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[Title of Invention]	COLLECTION METHOD OF OFFICE CONSUMABLES, SALES SYSTEM AND PROGRAM THEREFOR, AND MEDIUM
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[Type of the Document] Specification

[Title of the Invention] COLLECTION METHOD OF OFFICE
CONSUMABLES, SALES SYSTEM AND
PROGRAM THEREFOR, AND MEDIUM

5 [What Is Claimed Is:]

[Claim 1] A collection method of logging-in to a
designated server and specifying collection of used
office consumables according to a screen supplied by
the server,

10 characterized in that the screen contains an item
for ordering office consumables, and an item for
specifying whether to use collection of used office
consumables.

15 [Claim 2] The collection method according to
claim 1, characterized in that the screen contains data
which indicates the progress of collection of used
office consumables, if the collection has already been
specified.

20 [Claim 3] The collection method according to
claim 1 or 2, characterized in that used office
consumables are collected when ordered office
consumables are delivered, if the collection is
specified.

25 [Claim 4] The collection method according to any
one of claims 1 to 3, characterized in that an Internet
is used for a log-in to the server.

[Claim 5] The collection method according to any

one of claims 1 to 7, characterized in that the office consumables comprise a toner or ink.

[Claim 6] A collection method of supplying a screen for a logged-in user and allowing the user to 5 specify collection of used office consumables according to the screen,

characterized in that the screen contains an item for receiving orders for office consumables from the user, and an item for the user to specify whether to 10 use collection of used office consumables.

[Claim 7] The collection method according to claim 4, characterized in that the screen contains data which indicates the progress of collection of used office consumables in the case of the user who has 15 specified the collection.

[Claim 8] The collection method according to claim 5 or 6, characterized in that used office consumables are collected when ordered office consumables are delivered, if the collection is 20 specified.

[Claim 9] The collection method according to any one of claims 6 to 8, characterized in that an Internet is used for a log-in.

[Claim 10] The collection method according to 25 any one of claims 6 to 9, characterized in that the office consumables comprise a toner or ink.

[Claim 11] A sales system which has log-in means

for making a user who intends to order office consumables log-in, supply means for supplying an ordering screen for the logged-in user, and reception means for receiving order information which is based on 5 the ordering screen,

characterized in that the supply means supplies the user an ordering screen which contains an item for the user to specify whether to use collection of used office consumables.

10 [Claim 12] The sales system according to claim 11, characterized in that the supply means includes data which indicates the progress of collection of used office consumables in the ordering screen in the case of a user who has specified the collection.

15 [Claim 13] The sales system according to claim 11 or 12, characterized by further having collection means for collecting used office consumables when ordered office consumables are delivered, if the collection is specified.

20 [Claim 14] The sales system according to any one of claims 11 to 13, characterized in that the user accesses the sales system via an Internet.

[Claim 15] The sales system according to any one of claims 11 to 14, characterized in that the office 25 consumables comprise a toner or ink.

[Claim 16] A program for implementing a sales system which makes a user who intends to order office

consumables log-in, supplies an ordering screen for the logged-in user, and receives order information which is based on the ordering screen, characterized by having a step of supplying the user an ordering screen which

5 contains an item for the user to specify whether to use collection of used office consumables.

[Claim 17] The program according to claim 16, characterized by having a step of including data which indicates the progress of collection of used office

10 consumables in the ordering screen in the case of the user who has specified the collection.

[Claim 18] The program according to claim 16 or 17, characterized by further having a step of directing collection of used office consumables when ordered

15 office consumables are delivered, if the collection is specified.

[Claim 19] The program according to any one of claims 16 to 18, characterized by having a step of connecting the user and sales system via an Internet.

20 [Claim 20] The program according to any one of claims 16 to 19, characterized in that the office consumables comprise a toner or ink.

[Claim 21] A medium having a program code of a sales system which makes a user who intends to order

25 office consumables log-in, supplies an ordering screen for the logged-in user, and receives order information which is based on the ordering screen,

characterized in that the program code has at least a code for a step of supplying the user an ordering screen which contains an item for the user to specify whether to use collection of office 5 consumables.

[Claim 22] The medium according to claim 21, characterized by having a code for a step of including data which indicates the progress of collection of used office consumables in the ordering screen in the case 10 of the user who has specified the collection.

[Claim 23] The medium according to claim 21 or 22, characterized by further having a code for a step of directing collection of used office consumables when ordered office consumables are delivered, if the 15 collection is specified.

[Claim 24] The medium according to any one of claims 21 to 23, characterized in that the office consumables comprise a toner or ink.

[Claim 25] A medium having data for a sales 20 system which makes a user who intends to order office consumables log-in, supplies an ordering screen for the logged-in user, and receives order information which is based on the ordering screen, characterized by having data for each user which indicates the progress of 25 collection of used office consumables.

[Claim 26] The medium according to claim 25, characterized in that the office consumables comprise a

toner or ink.

[Detailed Description of the Invention]

[0001]

[Technical Field to Which the Invention

5 Belongs]

The present invention relates to a collection method of office consumables, a sales system and program for the office consumables, and a medium. For example, the present invention relates to a collection 10 method of efficiently and effectively collecting office consumables such as used toner cartridges and a sales system.

[0002]

[Prior Art]

15 Printers, copiers, and facsimile machines using electrophotography are essential tools in conducting business. These electrophotography-based machines need consumables such as toner. If they run out of consumables and are not replenished quickly, they will 20 be rendered unusable. To avoid such situations, offices maintain proper inventory of consumables. Recently, there have been companies that create a post called an IMS (Information Manager of System) to maintain proper inventory of consumables on a 25 company-wide basis.

[0003]

Some electrophotography-based machines are

supplied with toner by means of a cartridge called a toner cartridge. Each machine should be fitted with a toner cartridge according to its type. Printers generally require different toner cartridges if they 5 differ in type although they are all printers. Therefore, offices and business places which use many types of machine must keep many types of toner cartridge in stock. Proper inventory levels must be maintained not only for toner cartridges, but also for 10 all the office goods used in offices and business places. Hereinafter, commodities such as toner cartridges may be referred to as "office consumables." In addition to toner cartridges, office consumables include copier toners, photoconductive drums, ink-jet 15 printer ink, other service parts, paper, OHP sheets, etc.

[0004]

Toner cartridges themselves are made of recyclable materials. In addition to containing toner, 20 toner cartridges may be equipped with a mechanism for supplying toner to electrostatic latent images on the photoconductive drum or they may contain the photoconductive drum itself. Thus, in order to recycle such materials and parts, it is desirable that used 25 toner cartridges be collected efficiently.

[0005]

There are certain demands concerning the sales

style, inventory control, and recycling of office consumables with such characteristics:

[0006]

[Sales style]

5 With the widespread proliferation of the Internet, people wish to use an Internet in sales and ordering of office consumables. Although there are already systems that sell goods using the Internet, it is not easy to correctly select and order office
10 consumables compatible with the equipment used, from among a great variety of goods. Besides, the prices of goods listed by such sales systems do not deal with each customer individually.

[0007]

15 [Inventory control]

Manufacturers and stores which supply and sell office consumables according to the equipment used carry considerably large inventories of office consumables in their warehouses out of the necessity to
20 provide office consumables to customers in a short period. However, due to a great variety of office consumables and difficulty of demand forecasting, it cannot be said that proper inventory is maintained. Consequently, there are cases in which office
25 consumables ordered by customers are out of stock while geographically distant stores carry excessive inventory. In such cases, although it is possible to

supply the customers the office consumables from stores with excessive inventory, it is quite impossible to deliver them in a short period because the customers are located outside normal delivery areas. Thus, there 5 is demand for inventory control which takes into consideration the great variety of office consumables and difficulty of demand forecasting.

[0008]

[Recycling]

10 In order to collect and recycle toner cartridges effectively, it is desirable that toner cartridge manufacturers and recyclers know what types of toner cartridge will be returned, when and in what quantities. This allows manufacturers and recyclers to 15 plan a collection and recycling schedule of used cartridges and collect and recycle the used cartridges efficiently at low costs according to the schedule.

[0009]

As things stand now, however, only the question 20 as to whether to recycle toner cartridges is determined by users when the toner cartridges have been used, and thus a proper environment is yet to be established for effective, low-cost collection and recycling. Besides, current collection methods of toner cartridges involve 25 (1) stores or manufactures dispatching recovery vehicles, (2) users taking toner cartridges to stores, or (3) users sending toner cartridges by packing them

in special boxes, but all these methods are troublesome and costly.

[0010]

Under these circumstances, manufactures and
5 recyclers that should play an important role in
recycling are carrying out recycling activities
passively, and recycling is actually supported by the
efforts of users and stores. It seems that many used
toner cartridges are discarded to avoid the labor and
10 cost of collection. Thus, there is demand for a
collection system which can reduce the labor and cost
of collection.

[0011]

[Problems That the Invention Is to Solve]

15 The present invention intends to solve the above
problems individually or collectively and its object is
to centrally control circulation of office consumables.

[0012]

[Means of Solving the Problems]

20 As means for attaining this object, the present
invention has the following arrangement.

[0013]

According to the present invention, there is
provided a collection method of logging-in to a
25 designated server and specifying collection of used
office consumables according to a screen supplied by
the server, characterized in that the screen contains

an item for ordering office consumables, and an item for specifying whether to use collection of used office consumables.

[0014]

5 Alternatively, there is provided a collection method of supplying a screen for a logged-in user and allowing the user to specify collection of used office consumables according to the screen, characterized in that the screen contains an item for receiving orders
10 for office consumables from the user, and an item for the user to specify whether to use collection of used office consumables.

[0015]

According to the present invention, there is
15 provided a sales system which has log-in means for making a user who intends to order office consumables log-in, supply means for supplying an ordering screen for the logged-in user, and reception means for receiving order information which is based on the
20 ordering screen, characterized in that the supply means supplies the user an ordering screen which contains an item for the user to specify whether to use collection of used office consumables.

[0016]

25 According to the present invention, there is provided a program for implementing a sales system which makes a user who intends to order goods log-in,

supplies an ordering screen for the logged-in user, and receives order information which is based on the ordering screen, characterized by having a step of supplying the user an ordering screen which contains an 5 item for the user to specify whether to use collection of used office consumables.

[0017]

According to the present invention, there is provided a medium having a program code of a sales 10 system which makes a user who intends to order office consumables log-in, supplies an ordering screen for the logged-in user, and receives order information which is based on the ordering screen, characterized in that the program code has at least a code for a step of 15 supplying the user an ordering screen which contains an item for the user to specify whether to use collection of office consumables.

[0018]

Alternatively, there is provided a medium having 20 data for a sales system which makes a user who intends to order office consumables log-in, supplies an ordering screen for the logged-in user, and receives order information which is based on the ordering screen, characterized by having data for each user 25 which indicates the progress of collection of used office consumables.

[0019]

[Embodiments]

A sales and collection system of office consumables according to the present invention will be described in detail below with reference to the 5 drawings. Incidentally, although toner cartridges used for electrophotography-based printers, copiers, facsimile machines, and other machines, are cited as an example of office consumables in the description of embodiments, the present invention can be applied to 10 other types of office consumables, which include, for example, copier toners, photoconductive drums, other service parts, paper or OHP sheets, ink-jet printer ink, etc. It is desired that empty containers of many of these office consumables be collected. Regarding 15 copier toner, for example, the containers and packing boxes of toner are desired to be collected.

[0020]

[Flow of toner cartridges]

Fig. 1 is a diagram illustrating flow of toner 20 cartridges.

[0021]

In Fig. 1, toner cartridges produced at a factory 11 of a manufacturer 1 according to a production plan are sent to a warehouse 12 of the manufacturer as 25 needed. When an order is received by the manufacturer 1 from a seller 3, it may take a lot of days to make a delivery to the seller 3 (or seller's warehouse). The

seller 3 can make a delivery to a user 4 in a day (on the day after the order) at the latest as long as the ordered goods are in stock.

[0022]

5 On the other hand, there is no established route for collection of used toner cartridges. As described above, there are various routes including a route via the seller 3 and direct route from the user 4 to the manufacturer 1. Also, it seems that many used toner
10 cartridges are uncollected due to the problem of labor and cost involved in collection.

[0023]

Fig. 2 is a diagram showing the flow of toner cartridges according to this embodiment.

15 [0024]

In Fig. 2, toner cartridges produced at the factory 11 of the manufacturer 1 according to a production plan are sent to a master warehouse 5 as needed. The toner cartridges are placed temporarily in
20 the master warehouse 5, and then distributed to branch warehouses 6 scattered over various locations according to a shipment schedule described later. Although details will be described later, when an order is received from the user 4, toner cartridges are
25 delivered from a branch warehouse 6 to the user 4. At the time of delivery, used toner cartridges are collected according to the user's 4 wishes and placed

temporarily in a branch warehouse 6, but details will be described later. Later, the used toner cartridges placed in the branch warehouse 6 are sent to a collection center 7 from the branch warehouse 6 at a 5 designated time and recycled there.

[0025]

The master warehouse 5 shown in Fig. 2 is the primary warehouse central to the flow of toner cartridges and is operated by the manufacturer 1, the 10 seller 3, a distributor, or the like. It is desirable that the branch warehouses 6 which serve as contact points with the user 4 should be operated by distributors. The collection center 7 which is a center of recycling is operated by the manufacturer 1 15 or a recycler.

[0026]

A shared database (DB) 8 centrally controls physical distribution which includes production at the factory 11; inventories in the master warehouse 5 and 20 branch warehouses 6; orders by the user 4; and collection carried out among the factory 11, master warehouse 5, branch warehouses 6, user 4, and collection center 7. The central control by the use of the shared DB 8 is aimed at realizing proper 25 production, inventory, and physical distribution, at enabling, for example, next day delivery of the toner cartridges ordered by the user 4, at ensuring that

collected toner cartridges will be delivered to the collection center 7 in the right quantities at the right time, and so on.

[0027]

5 Incidentally, the seller 3 may not participate in the flow of toner cartridges itself, but does participate in data flow in the sales and collection system, described later.

[0028]

10 Implementing a flow of toner cartridges such as the one shown in Fig. 2 into a system ensures that toner cartridges will be available to users in a short period. This makes it easy to maintain the inventories of various toner cartridges at offices and business 15 places which use various types of printer, copier, and facsimile machine. Furthermore, in the case of small offices and business places, a toner cartridge may be ordered when prompted by a printer or the like to replace the toner cartridge after the remaining 20 quantity of toner falls below a certain threshold. This eliminates the need for inventory control itself.

[0029]

 In other words, by collectively controlling the production, physical distribution, inventory, order 25 receipts, and distribution of a great variety of toner cartridges, it is possible to adjust the inventory of toner cartridges between the master warehouse 5 and

branch warehouses 6 according to production and order receipts. Therefore, toner cartridges can be supplied to the user 4 in a short period even if the warehouse of the seller 3 or the like is not stocked with office 5 consumables. This solves problems caused by zero inventory or excessive inventory carried by the seller 3 and removes increased interest burdens due to excessive inventory.

[0030]

10 Besides, by using the shared DB 8, the collection center 7 can keep track of what types of toner cartridge will be returned, when and in what quantities. This makes it possible to plan a collection and recycling schedule of used cartridges 15 and collect and recycle the used cartridges efficiently at low cost. The collection center 7 can develop aggressive recycling activities.

[0031]

Furthermore, since the labor and cost of 20 recycling used toner cartridges can be minimized, it is possible to prevent disposal of used toner cartridges, resulting in an increased collection rate. This makes it possible to build environmentally friendly collection system and recycling system.

25 [0032]

The sales and collection system which implements the flow of toner cartridges shown in Fig. 2 will be

described below.

[0033]

[Sales and collection system]

5 Fig. 3 is a diagram showing an example
configuration of the sales and collection system of
toner cartridges.

[0034]

10 The main server 81 provides the shared DB 8.
Incidentally, the shared DB 8 is not necessarily
provided by a single server. It may be split among two
or more servers or provided in parallel by two or more
servers. In short, the shared DB 8 needs to be
provided as a single database only logically.

[0035]

15 The main server 81 is connected via a wide area
network (WAN) 100, such as the Internet, with a
plurality of terminals which use the shared DB 8.
Terminals 13, 31, 41, 51, 61, and 71 belong to the
manufacturer 1, seller 3, user 4, master warehouse 5,
20 branch warehouses 6, and collection center 7,
respectively. A terminal 32 is a mobile terminal used
by a salesman or serviceman of the seller 3 while a
terminal 62 is a mobile terminal used by an expediter
of a distributor.

25 [0036]

[Shared database]

The shared DB 8 contains databases and their

field information as illustrated below by an example. The information is provided to each terminal shown in Fig. 3 and updated there. Incidentally, the databases and their fields shown below may be deleted or new ones 5 may be added depending on the users and characteristics of office consumables handled by the sales and collection system.

[0037]

● Seller information database

10 Seller ID and password

Name, address, telephone number, and facsimile number

E-mail address

Customer representative information

15 Sales performance information

Collection performance information

Inventory information

● Warehouse information database

Master warehouse information

20 Branch warehouse information

Master-branch connection information

Warehouse-specific inventory information

The master warehouse information and branch warehouse information include the locations of the 25 warehouses, etc. The master-branch connection information includes information about the time required to deliver goods from the master warehouse 5

to the branch warehouses 6 and the time required to deliver goods between the branch warehouses 6, etc. The warehouse-specific inventory information includes the proper inventories of individual warehouses, etc.

5 [0038]

Based on this information, the main server 81 can control inventory transfers from the master warehouse 5 to the branch warehouses 6 and division of delivery operations among the branch warehouses 6. Besides, if 10 toner cartridges ordered by the user 4 are not available in nearby branch warehouses 6, the main server 81 can also control inventory transfers so that toner cartridges can be delivered within the period desired by the user 4 or in the shortest possible 15 period.

[0039]

● Product information database

Product name and model number

Related consumables

20 Product-specific inventory information

Price information

● Customer information database

User ID and password

Name, address, telephone number, and facsimile

25 number

E-mail address

Sales representative, salesman, and serviceman

Nearby branch warehouse #1

Nearby branch warehouse #2

Name (model number) and quantity of purchased product

5 Order history

 Collection flag

 Collection history

 Payment history

 Price information

10 ● Shipment information database

 Shipment destination customer information

 Status

 Order number

 Order date/time

15 Ordered item

 Delivery time

 Price

 Payment method

 Shipment date/time

20 Shipment arrival date/time

 Receiving inspection date/time

● Collection information database

 Collection source customer information

 Collection number

25 Collection date/time

 Collected item

 Expected delivery date/time at collection center

Delivery date/time

● Manufacturer, seller information, distributor
information

Manufacturer ID and password

5 Seller ID and password

Salesman ID and password

Serviceman ID and password

Warehouse ID and password

Expediter ID and password

10 [0040]

[Ordering sequence and screen]

Fig. 4 is a diagram showing an example of an ordering sequence for toner cartridges. Figs. 5 to 9 are diagrams showing examples of screens displayed on 15 the terminal 41 of the user 4 when ordering toner cartridges.

[0041]

First, the user 4 accesses the main server 81 via the terminal 41. Specifically, the user 4 specifies 20 the URL (Uniform Resource Locator) of the main server 81 using a Web browser or other software running on the terminal 41. In response, the main server 81 supplies data (hereinafter referred to as "HTML data") written in HTML (Hyper Text Markup Language) and corresponding 25 to a log-in screen to the terminal 41, whose monitor then displays the log-in screen shown in Fig. 5.

[0042]

In step S1 shown in Fig. 4, the user 4 enters his/her user ID which corresponds to his/her customer number, enters his/her password, and then presses an [OK] button to inform the main server 81 of the user ID 5 and password. Incidentally, it is assumed that each user (office or business place) of a printer has been informed of a user ID and password by the seller 3.

[0043]

When informed of the user ID and password, the 10 main server 81 judges in step S2 whether a user who corresponds to the user ID and password exists, by referencing the customer information database. If it is judged that a corresponding user exists, the main server 81 approves the user, generates HTML data which 15 corresponds to an ordering screen, and supplies it to the terminal 41. When the terminal 41 receives the supplied ordering screen information, its monitor displays the ordering screen shown in Fig. 6.

[0044]

20 The ordering screen shown in Fig. 6 consists mainly of a toner cartridge list 101 compatible with the equipment used by the user, settlement method selection section 102, delivery time specification section 103, and collection service registration 25 section 104 for used toner cartridges. Regarding the delivery time specification section 103, it is desirable that a pull-down menu form should be used so

that the part enclosed in [] bulls down to allow the user to specify a business day excluding holidays. In that case, a message should be displayed stating: "Select a desired delivery time from the pull-down menu 5 and then select either morning or afternoon."

Example: Delivery time: year [2000] month [2] day
[14] Morning Afternoon
[0045]

The list 101 contains model numbers of toner 10 cartridges, model numbers of corresponding machines, price information, which are displayed together with input fields for entering an order quantity for each toner cartridge model number. Although Fig. 6 shows only two toner cartridge models, actually the main 15 server 81 takes measures to list all toner cartridge model numbers compatible with each of the machines including printers, copiers, facsimile machines, etc. used by the user.

[0046]

20 Information of the equipment used by the user is obtained from a purchased product name field of the customer information database. A record having a product name or model number corresponding to the information is retrieved and obtained from the 25 production information database. The toner cartridge model number can be derived from the related consumables field of the obtained record.

[0047]

The collection service registration section 104 is intended for the user to indicate whether to use the collection service of used toner cartridges. If the 5 user wants to use the collection service and indicates it, used toner cartridges are collected at the time of the above-mentioned delivery of toner cartridges.

[0048]

Furthermore, if the user expresses his/her 10 intention to use the collection service as described above, a pair of shipping and collection tickets (shipping/collection ticket) are issued by the main server 81. The issued ticket is attached to a packing box of the toner cartridges delivered to the user. The 15 user keeps the box with the ticket attached, and uses it to put used toner cartridges at the time of collection. The use of the shipping/collection ticket saves labor at the time of collection, for example, sparing the user the trouble of issuing a new ticket 20 and the expediter the trouble of data entry. Also, since shipment and collection are managed by the same ticket number or the like, the collection rate for each user can be managed easily, and so forth.

[0049]

25 After filling in the fields on the ordering screen, the user presses a [Send] button. In step S3, ordered items and order quantity data which correspond

to the list 101, settlement method data which corresponds to the selection section 102, data about the desired delivery date which corresponds to the specification section 103, and a collection flag which 5 corresponds to the collection service registration section 104 is sent to the main server 81.

[0050]

Next, in step S4, based on the received data and flag, the main server 81 generates HTML data which 10 corresponds to an order confirmation screen and supplies the generated data to the terminal 41. Consequently, the monitor of the terminal 41 displays the order confirmation screen shown in Fig. 7. The content of the screen shown in Fig. 7 is the one which 15 is displayed if the user has expressed his/her intention to use the collection service. If the user does not intend to use the collection service, the content of the screen will be changed to a message such as "I will not use the collection service of used toner 20 cartridges."

[0051]

If the order details, collection service registration information, etc. displayed on the order confirmation screen are correct, the user 4 presses an 25 [OK] button in step S5. If there is a mistake or something the user wants to correct, the user presses the [Cancel] button. If the [Cancel] button is

pressed, the monitor of the terminal 41 displays the ordering screen again.

[0052]

Upon receiving the order confirmation
5 information, the main server 81 generates information which indicates a new order receipt. This information contains order number, user ID, collection flag, order history, collection history, sales representative ID, order date/time, ordered item, order quantity, desired
10 delivery time, price, payment method, and other data.

[0053]

Next, the main server 81 checks the delivery time using the customer information database and warehouse information database. Specifically, the main server 81
15 checks the nearby branch warehouse #1 and #2 fields associated with the user ID, checks the warehouse-specific inventory information field to see whether the branch warehouses 6 are stocked with the ordered items in quantities sufficient to meet the
20 order quantity, and sets the delivery time based on the results of checks. Normally, if the branch warehouses 6 registered in the nearby branch warehouse #1 and #2 fields carry inventory, a delivery can be made on the next day. If the branch warehouses 6 do not carry
25 inventory, the main server 81 determines and sets the delivery time using the warehouse information database.

[0054]

Next, in step S7, the main server 81 sends the above-mentioned order receipt information to the seller 3 in charge of the user 4 by attaching a price confirmation request. This is because the delivered 5 price, which is set and entered by the seller 3, varies depending on the conditions of trade with the user, and thus it should be confirmed. The price confirmation request is processed immediately by software running on the terminal 31 of the seller 3, and in step S8, price 10 confirmation, order cancellation, or other information is returned to the main server 81. Alternatively, the price confirmation request is sent to the portable terminal 32 of the salesman in charge of the user and in step S8, price confirmation, order cancellation, or 15 other information is returned to the main server 81 via the portable terminal 32 by the salesman.

[0055]

Upon receiving the price confirmation, the main server 81 sends order receipt information to the manufacturer 1 immediately in step S9 by attaching an order approval request. The order approval request is processed immediately by software running on the terminal 13 of the manufacturer 1 or by the operator who manages the terminal 13. In step S10, normally an 20 order approval is returned to the main server 81. If 25 information indicating cancellation of the order is received because of a mistake in price, the status of

the corresponding order receipt information is changed, for example, to "Cancelled."

[0056]

Next, in step S11, if the main server 81 receives 5 an order approval, it generates e-mail indicating the order approval, and sends it to the user 4 and seller 3. This e-mail contains information such as order number, user name, order date/time, ordered item, delivery quantity, delivery time, price, and seller 3 10 information (name, address, telephone number, and facsimile number).

[0057]

If the status of the order receipt information indicates order cancellation, the main server 81 15 generates e-mail confirming the order cancellation and sends it to the user 4 and seller 3. This e-mail contains information such as order cancellation reason, order number, user name, order date/time, ordered item, delivery quantity, delivery time, price, and seller 3 20 information (name, address, telephone number, and facsimile number).

[0058]

This ends the ordering sequence for toner cartridges. However, after the user 4 sends the order 25 confirmation in step S5, the monitor of the user 4's terminal 41 displays a screen such as the one shown in Fig. 8 for selecting among continuing ordering, viewing

order details again, and finishing ordering (logout) although this screen is not shown in Fig. 4. When the user 4 presses a [logout] button, the connection between the main server 81 and terminal 41 is cut off.

5 [0059]

If the user has already been registered for the collection service at the time of log-in in step S1, the main server 81 may supply an ordering screen such as the one shown in Fig. 9 to the terminal 41 in step 10 S2. Specifically, the lower part of the order screen shown in Fig. 9 contains a display section 105 for expressing appreciation for cooperation in collection and indicating the progress of collection while the lower part of the ordering screen shown in Fig. 6 15 contains the collection service registration section 104 for registering for collection of used toner cartridges. The user 4 can see the current collection quantity, collection rate, points, etc. from this display section 105.

20 [0060]

In this way, the user 4 can easily order toner cartridges compatible with the equipment he/she uses without the need to select the suitable ones from among a great variety of toner cartridges. This sharply 25 reduces the possibility of ordering wrong toner cartridges, and thus saves the labor or the like of returning toner cartridges ordered by mistake.

Furthermore, since the ordering screen displays prices relevant to the given user 4, user 4 can quickly see the cost needed to buy toner cartridges.

[0061]

5 On the part of the seller 3, since prices can be presented specifically to the user 4, it is possible to facilitate the sale via the Internet 100, enhancing the efficiency of operations. Furthermore, the seller 3 can save the labor of handling returned products due to
10 wrong orders.

[0062]

[Main-server processing]

Typical processing performed by the main server
81 will be described next.

15 [0063]

● Order processing

Fig. 10 is a flowchart showing an example of order processing. It corresponds to the ordering sequence shown in Fig. 4.

20 [0064]

When the user ID and password is received from the user 4, it is judged in step S21 whether the user is a registered user and password authentication is performed in step S22, based on the customer
25 information database. If the user is found to be a registered user and password authentication is successful, it is judged in step S23 whether there is

any illegal information about the user 4. If there is no illegal information, HTML data for the ordering screens is generated in step S24. Specifically, the list 101 and selection section 102 shown in Figs. 6 and 5 9 are generated according to the user ID, and then it is determined which to display, the collection service registration section 104 shown in Fig. 6 or the display section 105 shown in Fig. 9. The HTML data for the ordering screens generated in this way is sent to the 10 user 4 in step S25.

[0065]

The processing is terminated in any of the following cases: the user is not a registered user, password authentication fails, and there is illegal 15 information about the user 4.

[0066]

When order data is received in step S26, it is judged in step S27 whether or not the order data contains abnormal data. If it does, the processing 20 returns to step S25. If it does not, the HTML data for the order confirmation screen shown in Fig. 7 is generated in step S28 and sent to the user 4 in step S29.

[0067]

25 Next, in step S30, it is judged whether data indicating confirmation of the order was received. If data indicating cancellation was received, the

processing returns to step S25. If data indicating confirmation of the order was received, the customer information database (specifically, order history, collection flag, etc.) is updated in step S31 and the 5 order receipt information described above is generated in step S32.

[0068]

● Shipment processing

Fig. 11 is a flowchart showing an example of 10 shipment processing based on order receipt information.

[0069]

In step S41, one piece of order receipt information is read in. Then, based on the user ID, ordered item, and order quantity recorded in the order 15 receipt information, inventory checks are made in steps S42 to S46. Specifically, the inventory of each node is checked in the order: the nearby branch warehouse #1, nearby branch warehouse #2, master warehouse 5, seller (sales representative) 3 associated with the 20 user ID, and manufacturer 1. Then, procedures are taken for goods issue from the node nearest to the user 4.

[0070]

For example, if the manufacturer 1 carries 25 inventory while other nodes do not, procedures are taken for goods issues from the manufacturer 1, master warehouse 5, and branch warehouse 6 in this order in

steps S47 to S50. Needless to say, these goods issue procedures are taken in sync with the flow of toner cartridges.

[0071]

5 In step S50, based on the information received from the mobile terminal 62 of the expediter of the distributor, it is judged whether delivery has been made in relation to the order receipt information. If it has been, delivery procedures are carried out and
10 the order receipt information is updated (e.g., a delivered flag is turned on) in step S51.

[0072]

If the branch warehouses 6 and master warehouse 5 do not carry inventory and the seller 3 does, delivery
15 is entrusted to the seller 3 in step S52. In response to the request, the seller 3 instructs, for example, a serviceman, to make a delivery. In that case, it is judged in step S50 whether delivery has been made in relation to the order receipt information, based on the
20 information received from the mobile terminal 32 of the serviceman.

[0073]

If the manufacturer 1 does not carry inventory either, back order procedures are carried out in step
25 S53 and the order receipt information is updated.

[0074]

● Collection processing

Fig. 12 is a flowchart showing an example of collection processing based on the order receipt information.

[0075]

5 The expediter who delivers toner cartridges references the collection flag in the order receipt information. If the collection flag is on, used toner cartridges are collected at the time of delivery. The expediter accesses the main server 81 using the mobile 10 terminal 62 (S61 and S62), and sends delivery information and collection information associated with the order receipt information (S63). The collection information contains the model numbers and quantities of the collected toner cartridges associated with the 15 collection date and order receipt information.

[0076]

Upon receiving the collection information, the main server 81 updates the collection history for the user ID in the order receipt information in step S64. 20 Then, when goods receipt information of the collected cartridges is received from the terminal 61 of the branch warehouse 6 in step S65, the main server 81 updates the collection information in step S66. When goods issue information of the collected cartridges is 25 received from the terminal 61 of the branch warehouse 6 in step S67, the main server 81 updates the collection information in step S68. When arrival information of

the collected cartridges is received from the terminal 71 of the collection center 7 in step S69, the main server 81 updates the collection information in step S70 (e.g., turns on a collection completed flag).

5 [0077]

[Concrete examples of office consumables]

Fig. 13 is a schematic diagram showing an example configuration of a laser beam printer (LBP) equipped with office consumables according to this embodiment.

10 [0078]

In Fig. 13, an image scanner 2201 reads an original image and performs digital image processing on it. A printer 2202 forms an image on printing paper, corresponding to the original image read by the image 15 scanner 2201, and outputs it.

[0079]

In the image scanner 2201, reference numeral 2200 denotes a platen cover and 2203 denotes a platen glass. An original 2204 is placed with its recording surface 20 turned to the bottom of the figure and is secured by the platen cover 2200. Light outputted from a fluorescent lamp 2205 is reflected by the original 2204, led to mirrors 2206, 2207, and 2208, and focused on a linear CCD image sensor (hereinafter referred to 25 as the "CCD") 2210 through a lens 2209, which is fitted with an infrared cut filter. The CCD 2210 reads the reflected light from the original 2204 by separating it

into red (R), green (G), and blue (B) and sends the resulting analog image signals to an image processor 2211. The entire original 2204 is scanned when a unit containing the fluorescent lamp 2205 and mirror 2206 5 and a unit containing the mirrors 2207 and 2208 are caused to move mechanically at velocities of V and V/2, respectively, in the sub scanning direction orthogonal to the CCD 2210.

[0080]

10 The CCD 2210 consists, for example, of approximately 7500 pixels each for RGB colors, arranged in three lines (1210-1 to 1210-3) of light-sensitive pixels. It can scan the shorter 297-mm dimension of an A3-size original at a resolution of 600 dpi. If it is 15 necessary to scan the shorter 297-mm dimension of an A3-size original only at a resolution of 400 dpi, a one-dimensional image sensor with approximately 5000 pixels each for RGB colors will do.

[0081]

20 The image processor 2211 converts the analog image signals outputted from the CCD 2210 into digital image signals, generates images in color components yellow (Y), magenta (M), cyan (C), and black (BK) which correspond to the print toner colors, and sends the 25 images to the printer 2202. One of the YMCKB color component images is sent to the printer 2202 per scan of the original (per sub scan) by the image scanner

2201. Therefore, through four scans of the original, image signals of the four color components are sent to the printer 2202 in sequence to complete one print. However, if the image processor 2211 has necessary and 5 sufficient memory, image signals obtained by one scan can be stored in the memory, eliminating the need for the remaining three scans.

[0082]

The image signals of the YMCK color components 10 sent out by the image processor 2211 in sequence in this way are input into a laser driver 2212 in the printer 2202. The laser driver 2212 causes a laser diode 2213 to emit light according to the inputted image signals. Laser light emitted from the laser 15 diode 2213 scans a photoconductive drum 2217 via a polygon mirror 2214, $f-\theta$ lens 2215, and mirror 2216, and forms an electrostatic latent image on the photoconductive drum 2217.

[0083]

20 The electrostatic latent image formed on the photoconductive drum by the laser light is developed by developing units 2219 to 2222 which have yellow, magenta, cyan, and black toners. Specifically, four developing units 2219 to 2222 contact the 25 photoconductive drum 2217 one after another to carry out development using the color toners.

[0084]

Printing paper supplied by a paper cassette 2224 or 2225 is wound around a transfer drum 2223 by electrostatic forces and the toner image on the photoconductive drum 2217 is transferred. In the case 5 of recording using four color toners, four rotations of the transfer drum 2223 transfers the color toners in overlays to the printing paper. Then the printing paper is removed from the transfer drum 2223, the toner image is fixed by a fixing unit 226, and the printing 10 paper is ejected.

[0085]

In such an LBP, the photoconductive drum 2217, toner or toner cartridges contained in the developing units 2219 to 2222, and printing paper contained in the 15 paper cassettes 2224 and 2225 are office consumables.

[0086]

Fig. 14 is a schematic diagram showing an example configuration of an ink-jet printer (IJRA) equipped with office consumables according to this embodiment.

20 [0087]

In Fig. 14, a carriage HC engaged with a helical groove 5005 of a lead screw 5004 which rotates via power transmission gears 5011 and 5009 along with the forward and reverse rotation of a drive motor 5013 has 25 a pin (not shown) and reciprocates in the directions of arrows a and b. The carriage HC carries an ink-jet cartridge IJC.

[0088]

Reference numeral 5002 denotes a paper bail, which presses printing paper P against a platen 5000 along the travel direction of the carriage HC.

5 Reference numerals 5007 and 5008 denote photosensors which serve as home position detecting means for checking, in order to switch the rotational direction of the motor 5013, whether a lever 5006 of the carriage HC is located in the area where the sensors are

10 mounted. Reference numeral 5016 denotes a support member for supporting a capping member 5022 which caps the front of a printhead IJH. Reference numeral 5015 denotes a suction means for sucking on the inside of the cap to recover the printhead IJH through an opening 15 5023 in the cap.

[0089]

Reference numeral 5017 denotes a cleaning blade while 5019 denotes a member which allows the blade to move back and forth. They are supported on a body 20 support plate 5018. The type of the cleaning blade is not limited to the one described above, and it goes without saying that a known cleaning blade can be applied to this embodiment. Reference numeral 5021 denotes a lever for starting suction in suction 25 recovery. It moves together with movement of a cam 5020 engaged with the carriage HC. A driving force from the drive motor 5013 is controlled by a well-known

transmission means such as clutch engagement and disengagement.

[0090]

According to the above configuration, the 5 capping, cleaning, and suction recovery are performed by the action of the lead screw 5004 when the carriage HC is within an area on the home position side so that desired processes can be carried out at corresponding locations. However, desired actions may be performed 10 with known timings.

[0091]

In such an IJRA, the ink-jet cartridge IJC or ink in it constitutes office consumables.

[0092]

15 [Other embodiments]

Needless to say, the object of the present invention can also be attained by a storage medium (or recording medium) containing the software program code that implements the functions of the above embodiment: 20 it is supplied to a system or apparatus, whose computer (or a CPU or MPU) then reads the program code out of the storage medium and executes it. In that case, the program code itself read out from the storage medium will implement the functions of the above embodiment, 25 and the storage medium which stores the program code will constitute the present invention. The functions of the above embodiment may be implemented not only by

the program code read out and executed by the computer, but also by part or all of the actual processing executed, in accordance with instructions from the program code, by an OS (operating system) running on 5 the computer.

[0093]

Furthermore, the functions of the above embodiment may also be implemented by part or all of the actual processing executed by a CPU or the like 10 contained in a function expansion card inserted in the computer or a function expansion unit connected to the computer if the processing is performed in accordance with instructions from the program code that has been read out of the storage medium and written into memory 15 on the function expansion card or unit.

[0094]

In the case where the present invention is applied to the storage medium mentioned above, the storage medium will store the program code that 20 corresponds to the above-described sequence in Fig. 4 and/or the flowcharts in Figs. 10 to 12; and/or the program code which creates the data for the screens shown in Figs. 5 to 9.

[0095]

25 [Effect of the Invention]

As described above, the present invention makes it easy to collect used office consumables.

[Brief Description of the Drawings]

[Fig. 1]

Fig. 1 is a diagram illustrating the conventional flow of toner cartridges.

5 [Fig. 2]

Fig. 2 is a diagram showing the flow of toner cartridges according to this embodiment.

[Fig. 3]

Fig. 3 is a diagram showing an example configuration of 10 a sales and collection system of toner cartridges.

[Fig. 4]

Fig. 4 is a diagram showing an example of ordering sequence for toner cartridges.

[Fig. 5]

15 Fig. 5 is a diagram showing an example of screens displayed on the user's terminal at the time of ordering toner cartridges.

[Fig. 6]

20 Fig. 6 is a diagram showing an example of screens displayed on the user's terminal at the time of ordering toner cartridges.

[Fig. 7]

25 Fig. 7 is a diagram showing an example of screens displayed on the user's terminal at the time of ordering toner cartridges.

[Fig. 8]

Fig. 8 is a diagram showing an example of screens

displayed on the user's terminal at the time of ordering toner cartridges.

[Fig. 9]

Fig. 9 is a diagram showing an example of screens 5 displayed on the user's terminal at the time of ordering toner cartridges.

[Fig. 10]

Fig. 10 is a flowchart showing an example of order processing.

10 [Fig. 11]

Fig. 11 is a flowchart showing an example of shipment processing based on order receipt information.

[Fig. 12]

Fig. 12 is a flowchart showing an example of collection 15 processing based on order receipt information.

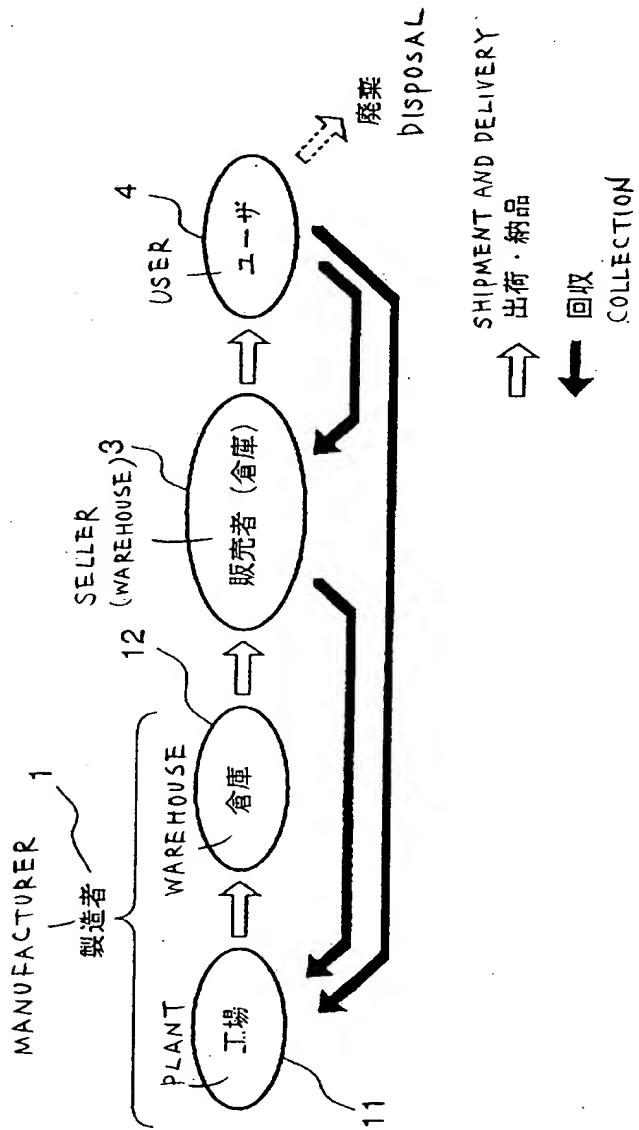
[Fig. 13]

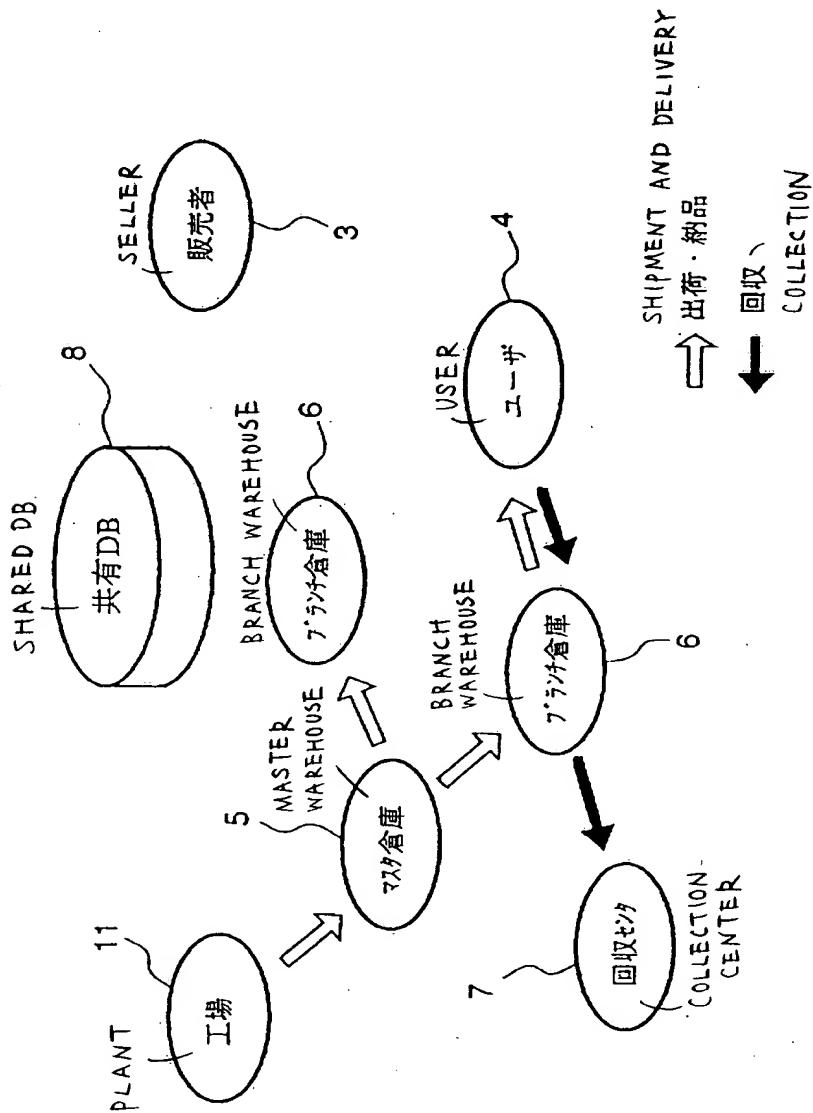
Fig. 13 is a schematic diagram showing an example configuration of a laser beam printer.

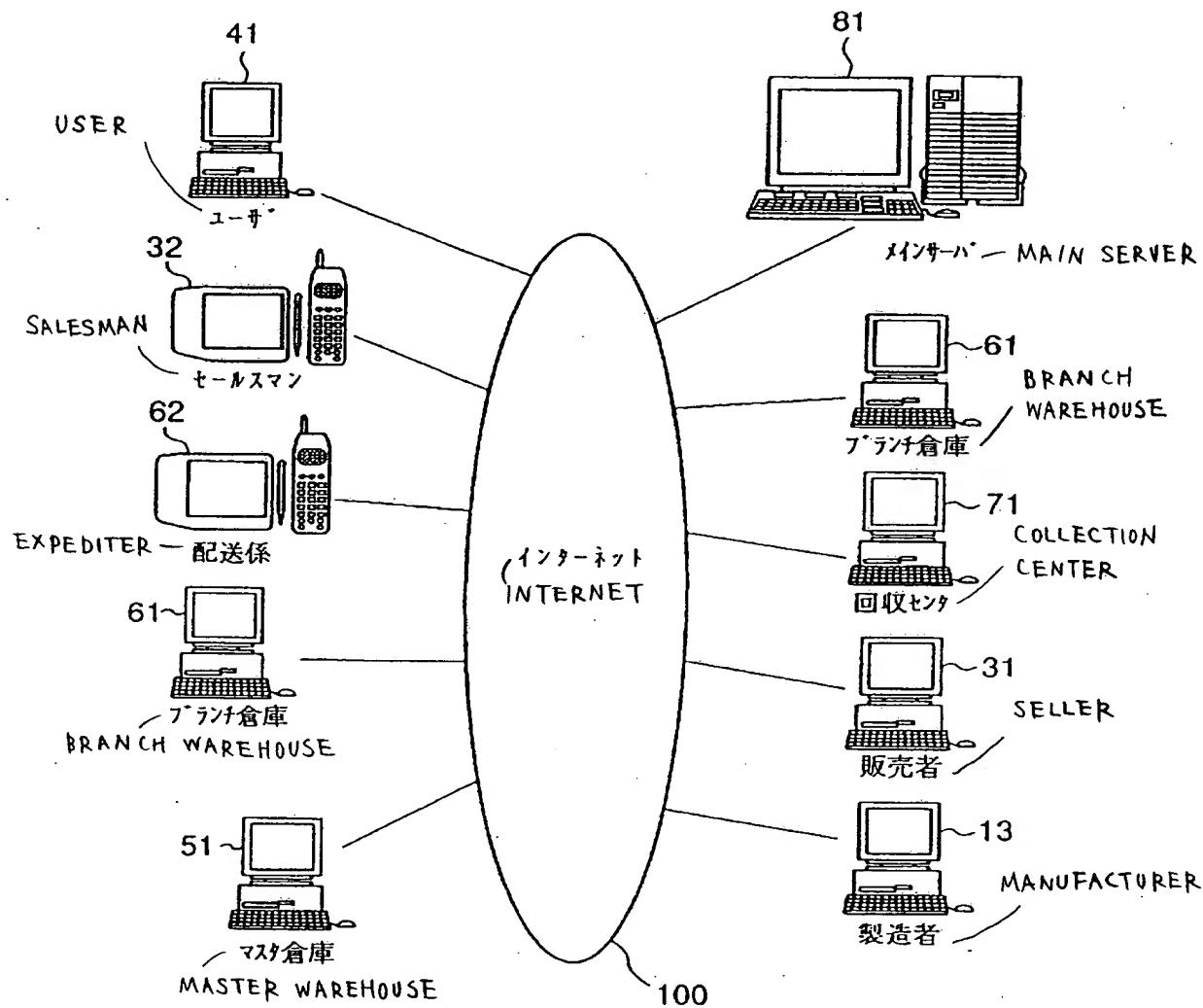
[Fig. 14]

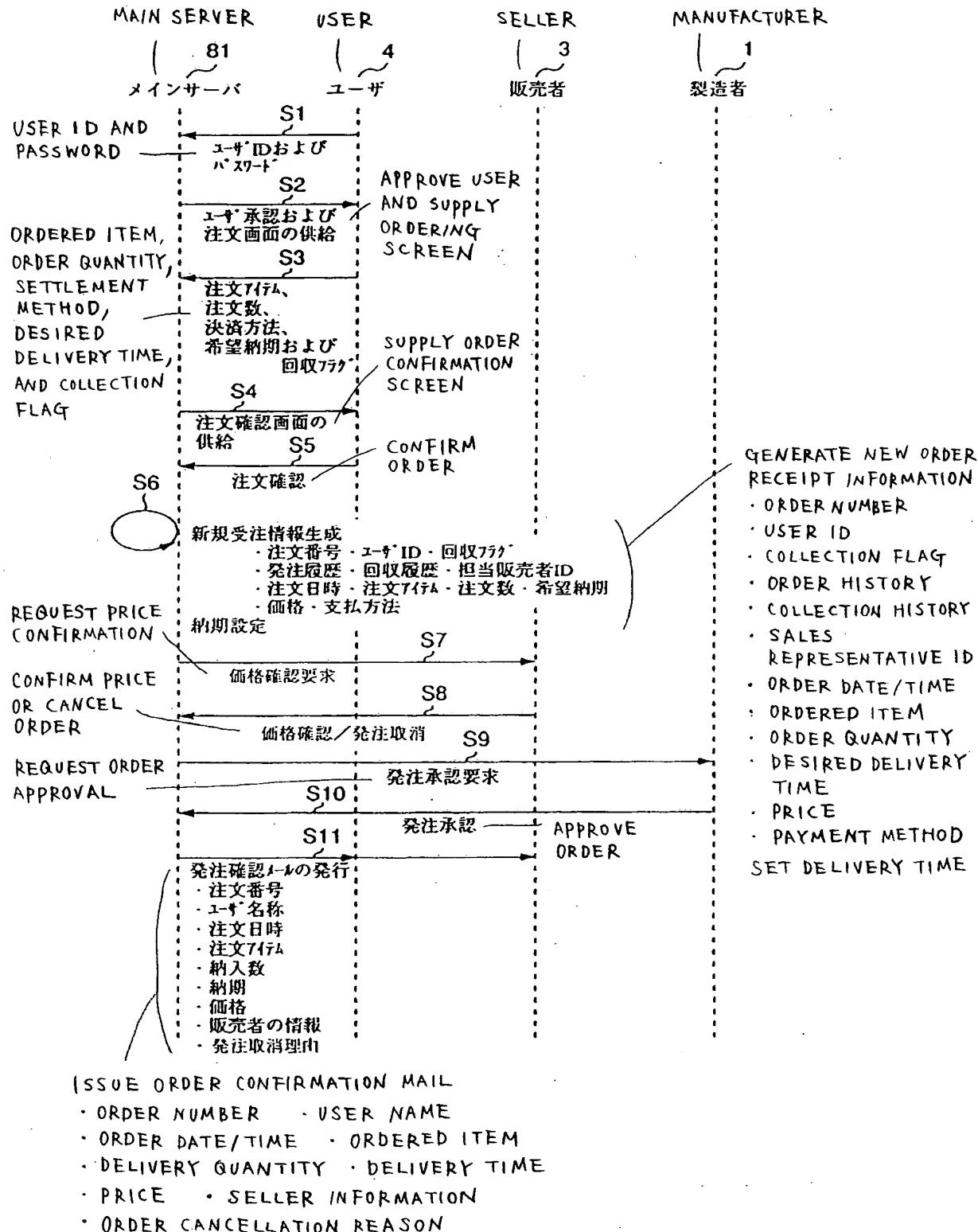
20 Fig. 14 is a schematic diagram showing an example configuration of an ink-jet printer.

(【書類名】 図面一 DRAWINGS
TYPE OF DOCUMENT
【図1】
FIG. 1



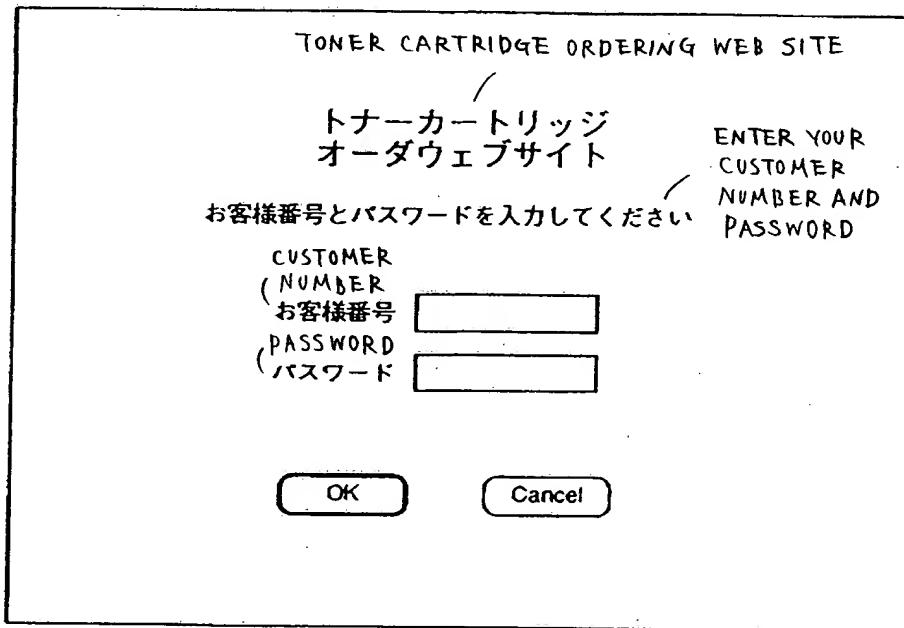
【図2】
FIG. 2

(【図3】
FIG.3

([図4]
FIG.4

【図5】

FIG.5



(【図6】
FIG. 6

TONER CARTRIDGES
NECESSARY FOR
YOUR EQUIPMENT
ARE AS FOLLOWS
ENTER ORDER
QUANTITIES

101

TONER CARTRIDGE ORDERING WEB SITE
トナー カートリッジ/
オーダ ウェブ サイト

○△カンパニー様ですね
お客様の担当ディーラーは○●商会です

お客様がご利用の機器に必要なトナー カートリッジは
次の商品です。ご注文数を入力してください

型番	MODEL NO.	価格	ご注文数
A CRG (LBP A用)	FOR LBP A	¥20,000	<input type="text"/>
B CRG (FAX B用)	FOR FAX B	¥30,000	<input type="text"/>

102

決済方法を選択してください

前回と同じ (銀行から自動引き落とし)
銀行振込
請求書決済
その他

DELIVERY TIME

103

ご希望の納期をyyy.mm.dd形式で指定し、
午前/午後を指定してください

納期 午前 午後 MORNING
AFTERNOON

使用済みトナー カートリッジの回収にご協力ください
回収数/回収率に応じたポイントをさしあげます
詳しくはこちらをご覧ください

104

回収に参加する YES NO
USE COLLECTION SERVICE

送信する
SEND

Cancel

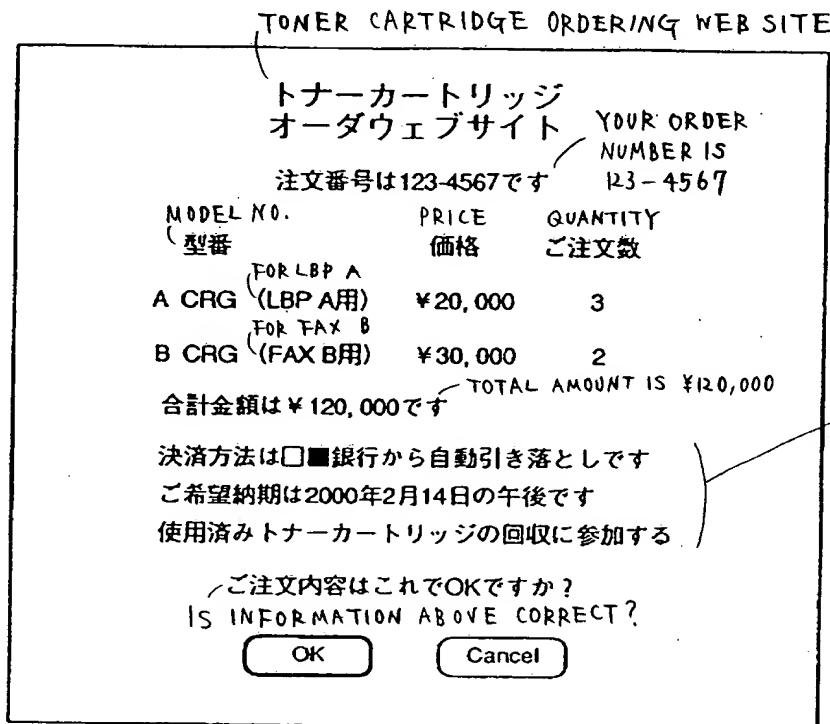
YOU ARE COMPANY
○△, ARE YOU?
YOUR DEALER IS
○● & CO.

SELECT SETTLEMENT
METHOD

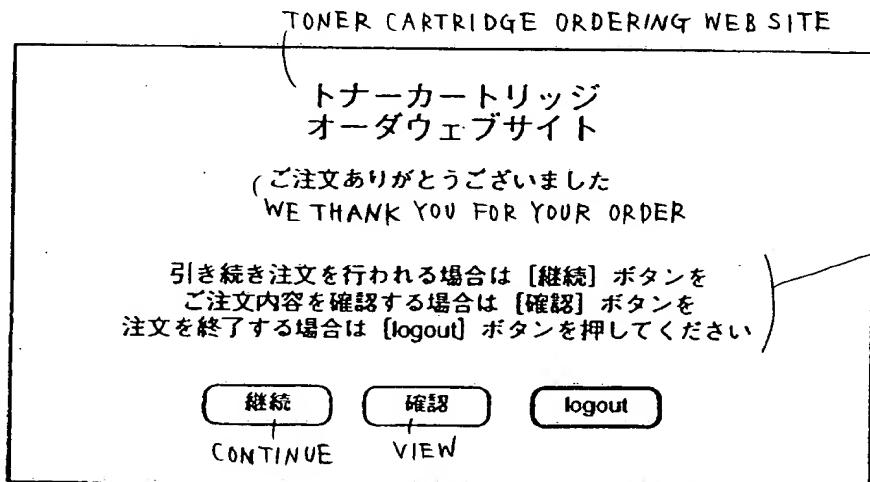
- SAME AS PREVIOUS
TIME (DIRECT DEBIT
FROM DB BANK)
- BANK TRANSFER
- SEND BILL
- OTHER

SPECIFY DESIRED
DELIVERY TIME IN
FORMAT yyy.mm.dd
AND SELECT
EITHER MORNING
OR AFTERNOON

PLEASE HELP US COLLECT USED TONER CARTRIDGES
WE WILL GIVE POINTS ACCORDING TO YOUR COLLECTION
QUANTITY / COLLECTION RATE
FOR MORE INFO, SEE —

【図7】
FIG.7

YOUR PAYMENT METHOD IS
DIRECT DEBIT FROM YOUR
□■ BANK ACCOUNT
YOUR DESIRED DELIVERY
TIME IS AFTERNOON OF
FEBRUARY 14, 2000
YOU ARE REGISTERED
FOR COLLECTION OF
USED TONER CARTRIDGES

【図8】
FIG.8

CLICK "CONTINUE" BUTTON
TO PLACE MORE ORDERS,
CLICK "VIEW" BUTTON TO
VIEW CONTENTS OF YOUR
ORDER(S), OR CLICK "LOGOUT"
BUTTON TO FINISH
PLACING ORDERS

【図9】
(FIG. 9)

TONER CARTRIDGE ORDERING WEB SITE

トナー カートリッジ
オーダ ウェブ サイト

○X△カンパニー様ですね
お客様の担当ディーラーは○●商会です

お客様がご利用の機器に必要なトナー カートリッジは
次の商品です。ご注文数を入力してください

101	型番 MODEL NO.	(価格 PRICE)	(ご注文数 QUANTITY)
	A CRG (LBP A用)	¥20,000	<input type="text"/>
	B CRG (FAX B用)	¥30,000	<input type="text"/>

102 決済方法を選択してください
 前回と同じ (□■銀行から自動引き落とし)
 銀行振込
 請求書決済
 その他

103 ご希望の納期をyyy.mm.dd形式で指定し、
午前/午後を指定してください
 納期 午前 午後 MORNING AFTERNOON

105 使用済みトナー カートリッジの回収に
ご協力いただき、誠にありがとうございます

○X△カンパニー様の回収数/回収率/ポイントは
200本/70%/200ポイントです

SEND

YOU ARE COMPANY
○X△, ARE YOU?
YOUR DEALER IS
○● & CO.

TONER CARTRIDGES
NECESSARY FOR
YOUR EQUIPMENT
ARE AS FOLLOWS
ENTER ORDER
QUANTITIES

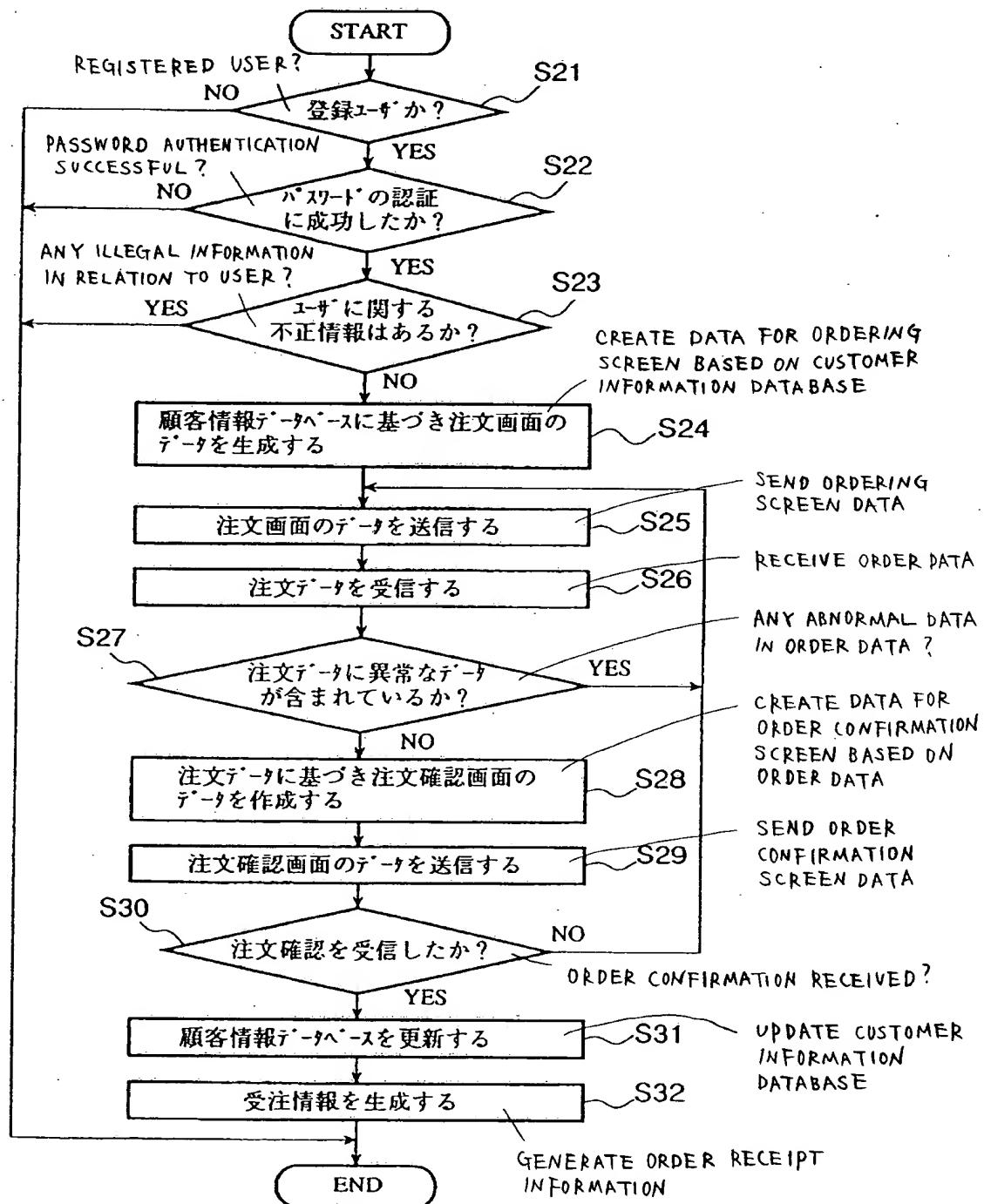
SELECT SETTLEMENT
METHOD

SAME AS PREVIOUS
TIME (DIRECT DEBIT
FROM ○● BANK)
 BANK TRANSFER
 SEND BILL
 OTHER

SPECIFY DESIRED
DELIVERY TIME IN
FORMAT YYY.MM.DD
AND SELECT EITHER
MORNING OR
AFTERNOON

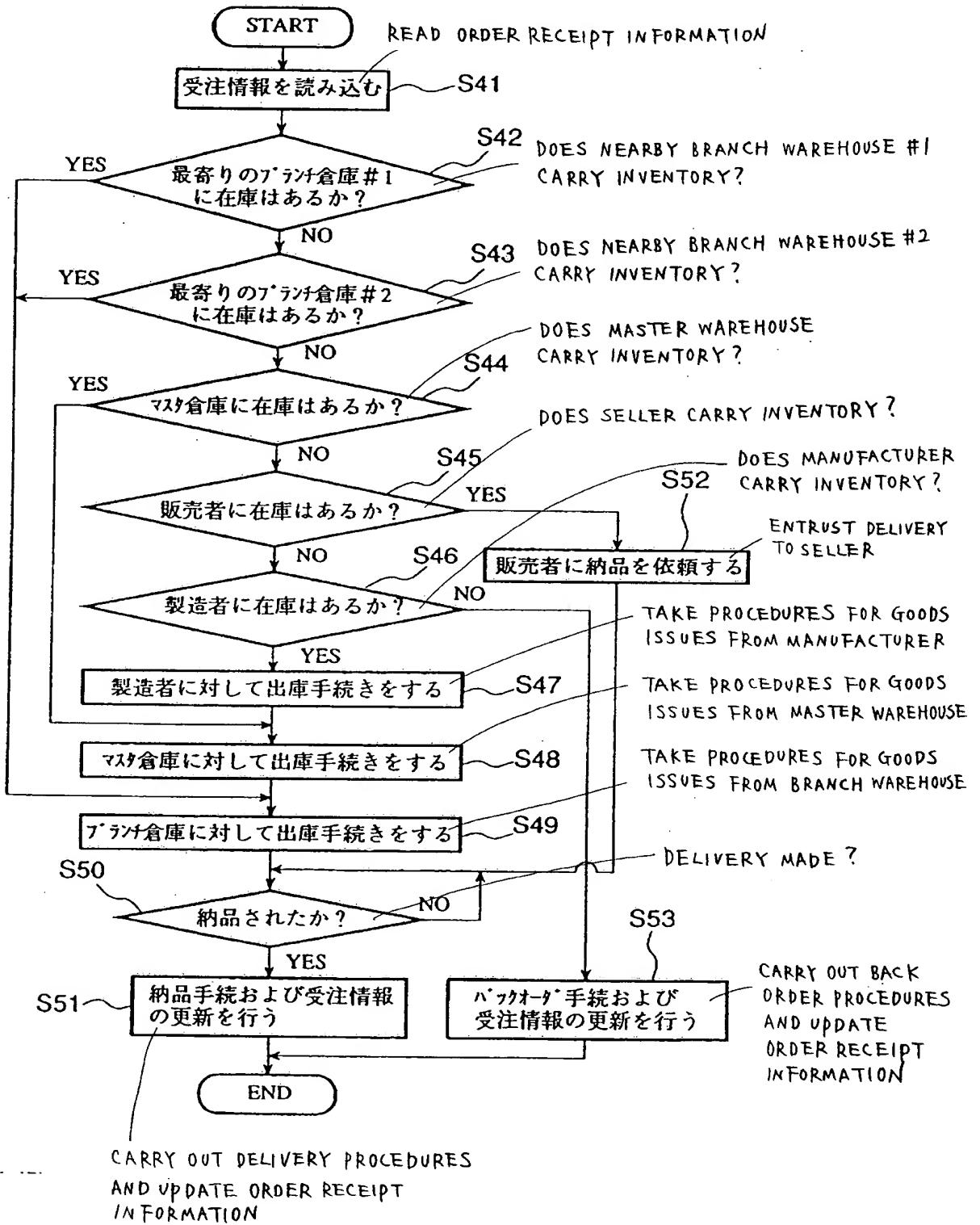
THANK YOU FOR HELPING US COLLECT USED
TONER CARTRIDGES

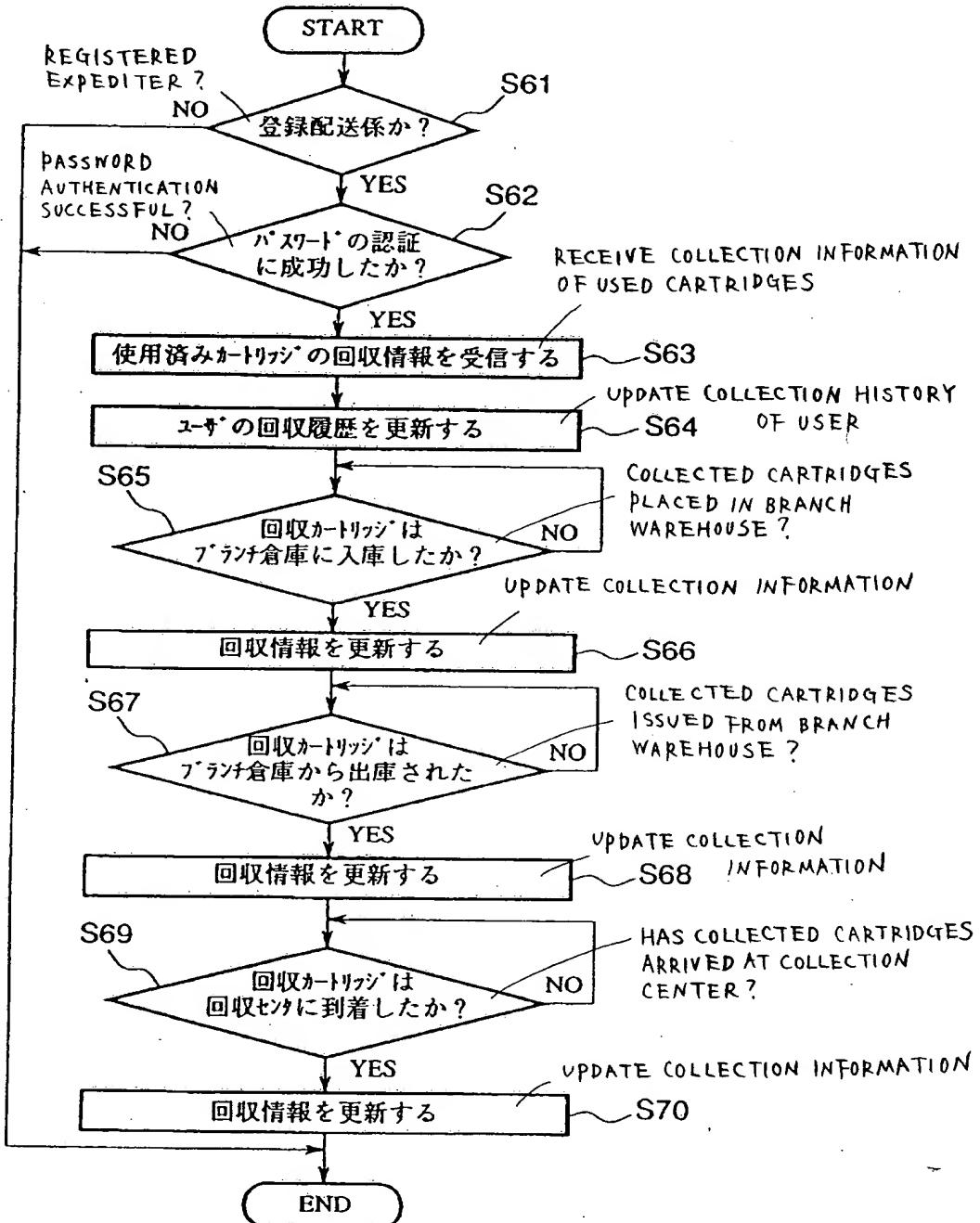
YOUR COLLECTION QUANTITY, COLLECTION RATE,
AND POINTS ARE 200 CARTRIDGES, 70%, AND
200 POINTS, RESPECTIVELY

〔図10〕
Fig.10

【図11】

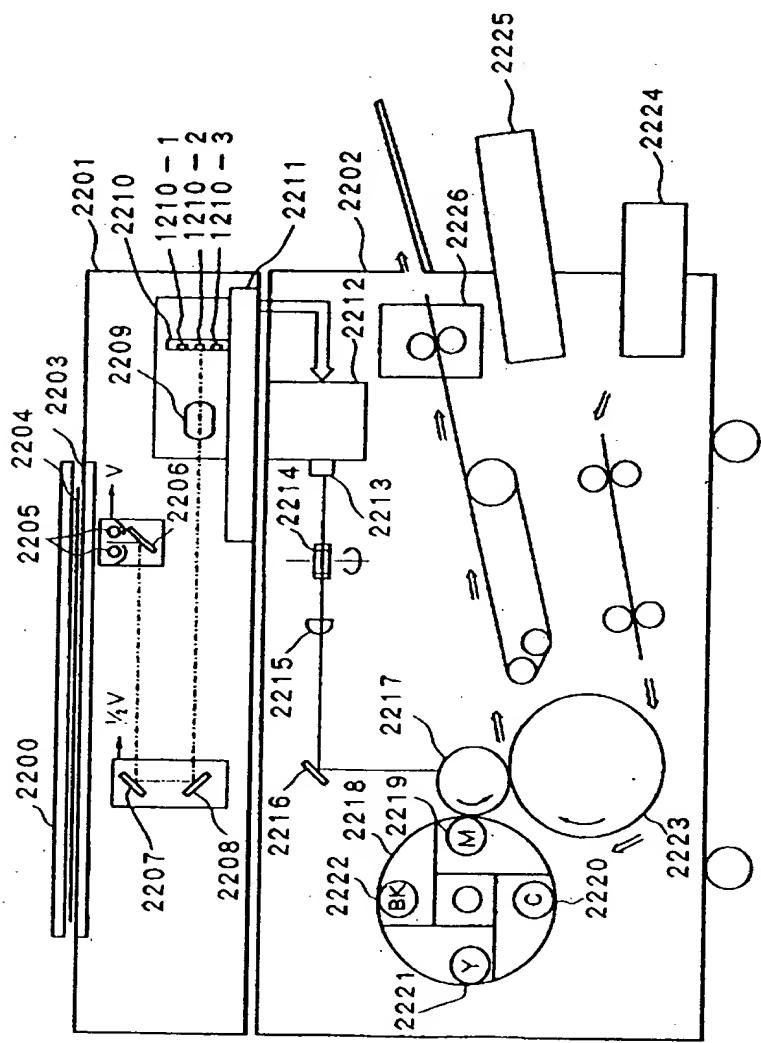
Fig.11



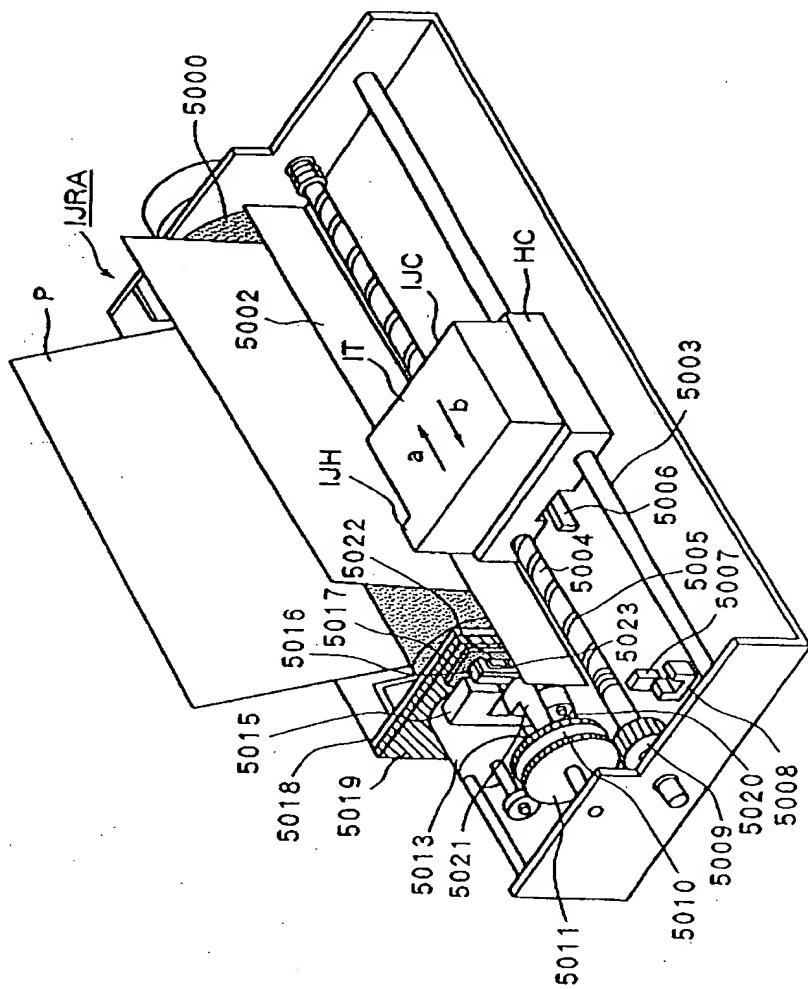
【図12】
FIG. 12

【図13】

FIG.13



〔図14〕
FIG.14



[Type of the Document] Abstract

[Abstract]

[Problem] Collection methods of toner cartridges involve stores or manufacturers dispatching recovery vehicles, users taking toner cartridges to stores, or users sending toner cartridges by packing them in special boxes, but all these methods are troublesome and costly.

[Solving Means] When an order is received from a user 10 4, toner cartridges are delivered from a branch warehouse 6 to the user 4. At the time of delivery, used toner cartridges are collected according to the user's 4 wishes and placed temporarily in a branch warehouse 6. Later, the used toner cartridges placed 15 in the branch warehouse 6 are sent to a collection center 7 from the branch warehouse 6 at a designated time and recycled there.

[Selected Drawing] Fig. 2